

## External Debt and Economic Growth: Evidence from Nigeria

Lawal Isola Adedoyi<sup>1</sup>, Bibire Mabel Babalola<sup>2</sup>, Adegbola O. Otekunri<sup>3</sup>, Johnson Olabode Adeoti<sup>4</sup>

**Abstract:** The study examined the impact of external debt on economic growth in Nigeria for the period 1981-2014 based on annual data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin (various issues) and abstract of National Bureau of Statistics (NBS). The researcher examined the existence of Co-integration among the underlying variables using Auto-regressive Distributed Lag (ARDL) model after conducting preliminary statistical test to ascertain the normality of the variables as well as stationary of the data set using descriptive and unit root tests. The result of the ARDL test shows that a significant relationship exists between external debt and economic growth both at the long and short run. The study also examined the causality among the variables using Granger causality test and observed that no causality exist among the variables. The study therefore recommends that government should ensure that loans obtained are used to finance profitable projects that would generate reasonable amount of revenue to service the debts and also adequate record of debt payment obligations should be kept and debt should not be allowed to exceed a maximum limit in order to prevent debt overhang.

**Keywords:** External Debt; Economic Growth; Nigeria; ARDL; Granger Causality

**JEL Classification:** C13; D4; D24; O4

### 1. Introduction

This current study attempts to examine the nature of the connection between economic growth and public debt. We intend to know whether or not the relationship is significantly negative and if yes, what is the implication and what policy options are available to the policymakers. The study is country-specific in nature as it focuses mainly on the Nigerian economy. Literature has shown that

---

<sup>1</sup> Dept. of Accounting and Finance, Landmark University, Address: P.M.B 1004, Ipetu road, Omu-Aran/Kwara State, Nigeria, Tel.:+2348035233567, Corresponding author: lawal.aadedoyin@lmu.edu.ng.

<sup>2</sup> Dept. of Accounting and Finance, Landmark University, Omu Aran, Nigeria, P.M.B 1004, Ipetu road, Omu-Aran/Kwara State, Nigeria, E-mail: adedoyinisola@gmail.com.

<sup>3</sup> Dept. of Accounting and Finance, Landmark University, Omu Aran, Nigeria, P.M.B 1004, Ipetu road, Omu-Aran/Kwara State, Nigeria, E-mail: bravolap@gmail.com.

<sup>4</sup> Dept. of Business Administration, University of Ilorin, Ilorin, Address: 1515, University of Ilorin, Ilorin 240003, Nigeria, E-mail: lawal.aadedoyin@lmu.edu.ng.

country-specific research have some salient advantages over cross-section studies because it is free from issues associated with the problem of ignoring every country's characteristics that has been experienced in cross-section studies. Although, the proponents of cross-section studies are of the view that all countries possess homogenous economic structure, Forbes (2000) challenges the usefulness of the results of cross-section studies on the ground that it has no specific policy implementation based on the fact that some salient features of individual countries in a group of country being study have been ignored. The author further explained that the homogeneity of countries in cross-section studies cannot be fully ascertained.

The choice of Nigeria is induced by divers arguments by successive administration in Nigeria on the impact of debt on the nation's economic growth as shown in there disposition to public debt usage in the effort to build the economy. For instance, while the Obasanjo's led administration in 2003-2007 strongly pursue debt cancellation which led to drastic reduction of external debt to about \$3.4 billion in 2007 from over \$42 billion in previous years, the successive governments after Obasanjo have toe the path of debt attraction for instance, the nation's debt have steadily increase from \$3.4 billion in 2007 to \$3.7 billion in 2008, \$3.9 billion in 2009, \$4.5 billion in 2010, \$5.7 billion in 2011, \$6.5 billion in 2012, \$9.0 billion in 2013, \$9.5billion in January,2015. However, between May 2015 and June, 2016, the country debt had increased by more than \$14billion (NBS, 2016). The nation's high rising debt position was one of the key campaign issues in the 2015 general election, yet in just about a year of the new administration, the nation's indebtedness has risen by about ₦4 trillion. The questions are: Is debt contributory to economic growth in Nigeria? In order words, what is the nature of the relationship between debt and economic growth in Nigeria? Does debt Granger causes economic growth? Answering these questions are important to virtually all the various economic agents, for instance, the policy makers will find the response useful in making decision on the best mixture of debt in financing growth in Nigeria.

The remain part of this study is as follows. Section two will focus on literature review, Section three will focus on methodology, and Section four will present the results while Section five concludes the study.

## **2. Theoretical and Empirical Reviews**

Several theories have been promulgated by scholars in a bid to explain the issue of external debt as it relate to economic growth. Some of these theories that are relevant to this study will be discussed in this section, they are: the dual-gap theory; debt overhang theory; crowding-out effect theory; dependency theory and the Solow-growth model.

### **Dual Gap Theory**

The dual gap analysis explained that development is a function of investment, and that investment is essentially a product of domestic savings, which more than often is not adequate to finance development. Given this scenario, government adopts strategies of collecting from abroad the sum that can be invested in the economy, which is usually equal with the sum that is saved. In addition, the domestic resources are to be augmented from abroad, such that we have excess of import over export (i.e.  $M > E$ ).

$$I - S$$

$$M - E$$

$$\text{Hence, } I - S = M - E$$

In national income accounting, surplus of investment over domestic saving is equal to surplus of import over export.

$$\text{Income} = \text{Consumption} + \text{Import} + \text{Savings}$$

$$\text{Output} = \text{Consumption} + \text{Export} + \text{Investment}$$

$$\text{Income} = \text{Output}$$

$$\text{That is, } \text{Investment} - \text{Savings} = \text{Import} - \text{Export}.$$

This is the foundation of dual gap analysis; it explains that if the domestic saving available falls short of the level needed to realize the target rate of growth, a savings investment gap is thought to be in existent, thus borrowing is induced. On a similar note, if the maximum import requirement necessary to realize the growth target is larger than the maximum possible level of export, then there is an export-import exchange gap.

### **Debt Over-Hang Theory**

This theory is built on the principle that if the level of debt will surpass the country's ability to repay with some probability in the future, estimated debt service is expected to be a growing function of the country's output level. Therefore some of the returns obtained through investing in the domestic economy are efficiently taxed away by current foreign creditors and the investment made by domestic and new foreign investor is not encouraged. Debt servicing, which includes interest payments and repayments, is likely to be a factual link from an indebted country. It only takes large benefit from the domestic economy to be able to allocate to the foreign economy. Therefore, the country declines some outstanding multiplier-accelerator effects. This reduces the domestic country's growing ability in her economy and increases her dependency on foreign debt (Yucel, 2009; Tamasehke, 1994).

**Crowding Out Effect**

Under the **crowding out effect**, a decline in the debt service would lead to growth in investment for every given level of future indebtedness, if a larger portion of foreign resources are utilized to service external debt, very little portion is available for investment and growth. In summary, debts overhang hypothesis emphasizes that external debt leads to a negative effect on investment. The debtor country cannot profit fully from an upsurge in production (economic growth). A part of the production would go to creditor countries in order to pay the debt service and this fact is a concern for investment and production decisions.

**Dependency Theory**

Dependency theory states that the poverty of the countries in the periphery is not only because they are not integrated or fully integrated into the world system, as it is often argued by free market economists, but because of how they are integrated into the system. From this standpoint a common school of thought is the Bourgeoisie scholars, who are of the view that the state of underdevelopment and the constant dependence of less developed countries on developed countries are as a result of their domestic mishaps. They believe this issue can be explained by their lack of close integration, diffusion of capital, low level of technology, poor institutional framework, bad leadership, corruption, mismanagement, etc. (Momoh & Hundeyin, 1999). The proponents of this School of Thought see the underdevelopment and dependency of the third world countries as being internally inflicted rather than externally afflicted. To this school of thought, a way out of the problem is for third world countries to seek foreign assistance in terms of aid, loan, investment, etc, and allow undisrupted operations of the Multinational Corporations (MNCs).

**Solow Growth Model and External Debt**

The Solow growth model is built on a closed economy framework, which makes use of labour and capital as its means of production. Under this scenario the implication of external debt on growth can be seen through its effect on the domestic saving which in turn is used as investment in a closed model. The general effect of external debt on the Solow growth model can be analyzed by looking at the individual effects of the debt overhang and debt crowding theories on the Solow growth model. According to the debt overhang hypothesis, the government in an attempt to amortize the accumulated debt will increase tax rate on the private sector (as means of transferring resources to the public sector). This will discourage private sector investment and also reduce government expenditure on infrastructure as the resources are used to pay up huge debt service payments instead of being put into good use. This will lead to a reduction in total (private and public) investment in the economy and a shift downward of both the investment and production function curves in Solow growth model. On the other hand, in the

case of debt crowding out, in a bid to clear their outstanding debts, the government makes use of their revenue from export earnings and in some cases transfer resources including foreign aid and foreign exchange resources to service their forthcoming debt. Those countries which transfer revenue from export earnings which can be used in investment in the economy to avoid huge debt payments will discourage public investment. This in turn will decrease economic growth and will shift both the investment and production function curves in Solow growth model downward (Dereje, 2013).

Several researchers both within and outside Nigeria have concentrated their research on external debt and economic growth. The result from the studies showed both positive and negative effects of external debt on investment and economic growth. Some of these studies are reviewed below.

Karagoz and Caglar (2016) attempted to provide a unified model to answering the question relating to relevance of debt on economic growth by using pooled regression, fixed effects and random effect models to analysis panel data model of 17 selected OECD countries. The result shows that a positive relationship exist between debt and growth for the OECD countries; the authors argues that, existence of positive relationship in their findings is indicative of good policy administration in the selected OECD countries. A major flaw of Karagoz and Caglar' study is that it fails to justify the choice of the selected 17 OECD countries, besides, it does not factor in some salient issues peculiar to specific country when debt-growth relationship is being considered.

Chen *et al*, (in Press) examined the impact of both the public investment and public debt on economic growth based on data sourced from 1991 – 2014 for a panel of dataset for 65 developed and developing economies. They observed that debt and public investment have positive effect on economic growth up to a point where optimal level is achieved. Any point beyond, the optimal level will have a negative impact on the economy. The author therefore suggest that policy makers should be careful in identifying and keeping momentum with the optimal level when administering either debt or public investment to achieve economic growth (see also Ocampo (2004), Jayaraman & Lau (2009), Checherita-Weatphal & Rother (2012), Ouyang & Rajan (2014), Ramzan & Ahmad (2014)).

For a sample of OECD countries, Panizza and Presbitero (2014) observed that a negative correlation exist between debt and growth. The result further reveals that the link between debt and growth disappears once endogeneity is factored into the model. The study also shows that there is no evidence to support the view that public debt has a causal effect on economic growth for the economies studied.

For some selected 107 economies with 79 episodes of public debt reduction ranging from 1980 – 2012, Baldacci *et al*, (2015) observed that expenditure-based, front loaded fiscal adjustment that are gradual and depends on a mix of revenue

and expenditure measure that can support output expansion, while reducing public debt. The authors concluded that debt enhances growth only to the level of its impact on supply side framework.

Melina *et al* (2016) used Debt, Investment, Growth and National Resources (DIGNAR) model to analyze the connection between the macroeconomic and debt sustainability for some developing resource-rich economies. The study observed that when fiscal adjustment is implementable, the economy is characterized with a delinked public investment approach combined with the resources fund in such a way that makes spending cyclical, with respect to resource revenues, thus driving macroeconomic instability towards a spend-as-you-go approach. The authors cautioned that ambitious frontloading public investment characterized by indiscriminate borrowing can induce debt sustainability risks at the eye of a nose-diving investment efficiency.

Siddique *et al*, (in press) calibrated oil price behavior into growth-debt model. The author argued that fluctuations in oil price cum poor management among others are the factors that makes debt encumbrance on economic growth for a number of Heavily Indebted Poor Countries (HIPC).

For the Indian economy, Bal and Rath (2014) used the ARDL model to analyze data sourced from 1980 – 2011 so as to examine the effect of public debt on economic growth in India. The authors observed that in line with a priori expectation, in the short run the central government debt, total factor productivity (TFP) growth, and debt services significantly affects economic growth. The study recommends that policy makers should follow the objective of inter-generational equity in fiscal management over long run so as to stabilize debt-GDP ratio for the Indian economy.

Spilioti and Vamvoukas (2015) calibrated fiscal policy indicators affecting growth, openness and external competitiveness as well as demographic factors into the debt-growth nexus model for the Greek economy based on data sourced from 1970 to 2010, and observed that a significant positive relationship exist between economic growth and debt for Greece. The results of Spilioti and Vamvoukas (2015) is similar to that of Bashar *et al* (2012) for Bangladesh; Cevik and Cural (2013) for Turkey; Kasidi and Said (2013) for Tanzania; Uzun *et al* (2012) for a team of 27 transition countries; and Zaman and Arslan (2014) and Fida *et al* (2011) for Pakistan but contradicts the findings of Zaman and Georgesiu (2015) for Romania.

Dogan and Bilgili (2014) used multivariate dynamic Markov-Switching model to examine the linkages between economic growth and development for the period 1974 to 2009 for the Turkish economy. The study observed that public debt exerts negatively on economic growth and that the negative impact of public debt on economic growth is higher than that of private borrowing on economic growth for

the Turkish economy. The study concludes that economic growth and debt do not follow a linear path<sup>1</sup>.

On the direction of causality between debt and equity, Gomez-Piug and Sosvilla-Rivero (2015) documented that a bi-directional causal relationship exist between public debt and economic growth in both the Central and Peripheral countries of European Economic and Monetary Union. They further stated that debt have a negative impact on economic growth for Belgium, Greece, Italy and Netherlands.

Pioneer work on the Nigerian public debt can be traced to Ajayi (1991) who observed that the malfunctions of macroeconomic policies among others are the factors that make debt burdensome on growth. Ever since, a number of researches have been conducted on debt behavior in Nigeria with researchers examining various impact of debt on the nation's economy, for instance, Edo (2002) focused on the impact of foreign debt accumulation in Nigeria, Ajayi and Oke (2012) examined the link between the nation's debt and each of national income and per capital income. On the impact of debt on economic growth, evidence from empirical literature from Nigeria are at best mixed, for instance, while Adegbite et al (2008), Boboye and Ojo (2010), Ezeabasili *et al*, (2011), Osuji and Ozurumba (2013) are of the view that a negative relationship exist between economic growth and debt in Nigeria; Ogunmuyiwa (2011), Sulaiman and Azeez (2012), Abdullahi et al (2015) documented the existence of a positive relationship among the dual. The mixed result of the empirical funding on Nigeria is one of the factors that motivates the current research work

### 3. Methodology

To investigate the existence of cointegration among the variables studied in this research, this paper adopts one of the contemporary time series techniques of analysis called the Autoregressive Distributed Lag (ARDL) model which was established by Pesaran and Shin (1999) and later extended by Pesaran *et al* (2001). ARDL is lately becoming a popular standard technique used to examine co-integration among financial variable. Our choice of the ARDL model is based on the advantages of the model over the existing cointegration techniques like Engle and Granger (1987), Johansen (1991), Johansen and Juselius (1990) and Gregory and Hansen (1996) for a number of reason: First; it is more appropriate when faced with small sample size (Ozturk and Acaravci (2010); Odhiambo (2010) Babajide *et al* (2015), Babajide and Lawal 2016); second, it is applicable whether or not the underlying regressions are purely I(0), purely I(1) or mutually co-integrated (Marashdeh (2005)); third, the techniques accommodates different optimal lags unlike other conventional co-integration procedures (Bekhet and Matar (2013)).

<sup>1</sup> See also (Asley, 2002, Muhtar, 2004).

These advantages motivate the choice of ARDL procedure in investigating the relationship among the variables. The ARDL model specification is stated in bellow.

### 3.1. Model Specification

We develop a linear equation model such that:

$$RGDP = f(EXTDEBT, EX, CPI) \dots \dots \dots (1)$$

The ARDL estimation is as follow: The ARDL estimation is as follow:

$$\begin{aligned} \Delta \ln RGDP_t = & \beta_{01} + \sum_{i=1}^{n1} \beta_{11} \Delta \ln RGDP_{t-i} + \sum_{i=0}^{n2} \beta_{12} \Delta \ln EXTDEBT_{t-i} \\ & + \sum_{i=0}^{n3} \beta_{13} \Delta EX_{t-i} + \sum_{i=0}^{n4} \beta_{14} \Delta CPI_{t-i} \phi_{11} \ln RGDP_{t-1} \\ & + \phi_{12} \ln EXTDEBT_{t-1} + \phi_{13} EX_{t-1} \\ & + \phi_{14} CPI_{t-1} \varepsilon_{t1} \end{aligned} \quad (2)$$

$$\begin{aligned} \Delta \ln EXTDEBT = & \beta_{01} + \sum_{i=1}^{n1} \beta_{11} \Delta \ln EXTDEBT_{t-i} + \sum_{i=0}^{n2} \beta_{12} \Delta \ln RGDP_{t-i} \\ & + \sum_{i=0}^{n3} \beta_{13} \Delta EX_{t-i} + \sum_{i=0}^{n4} \beta_{14} \Delta CPI_{t-i} \phi_{11} \ln RGDP_{t-1} \\ & + \phi_{12} \ln EXTDEBT_{t-1} + \phi_{13} EX_{t-1} \\ & + \phi_{14} CPI_{t-1} \varepsilon_{t1} \end{aligned} \quad (3)$$



$$\begin{aligned}
 \Delta EX = & \beta_{01} + \sum_{i=1}^{n1} \beta_{11} \Delta EX_{i-t} + \sum_{i=0}^{n2} \beta_{12} \Delta \ln RGDP_{i-t} \\
 & + \sum_{i=0}^{n3} \beta_{13} \Delta \ln EXTDEBT_{t-t} \\
 & + \sum_{i=0}^{n4} \beta_{14} \Delta CPI_{t-i} \phi_{11} \ln RGDP + \phi_{12} \ln EXTDEBT_{t-1} \\
 & + \phi_{13} EX_{t-1} \\
 & + \phi_{14} CPI_{t-1} \varepsilon_{t1}
 \end{aligned} \tag{4}$$

$$\begin{aligned}
 \Delta CPI = & \beta_{01} + \sum_{i=1}^{n1} \beta_{11} \Delta CPI_{i-t} + \sum_{i=0}^{n2} \beta_{12} \Delta \ln RGDP_{i-t} \\
 & + \sum_{i=0}^{n3} \beta_{13} \Delta \ln EXTDEBT_{t-t} \\
 & + \sum_{i=0}^{n4} \beta_{14} \Delta EX_{t-i} \phi_{11} \ln RGDP_{t-1} + \phi_{12} \ln EXTDEBT_{t-1} \\
 & + \phi_{13} CPI_{t-1} \\
 & + \phi_{14} EX_{t-1} \varepsilon_{t1}
 \end{aligned} \tag{5}$$

Where  $\ln$  is the log of the variables,  $RGDP$  represent the Real Gross Domestic Product;  $EXTDEBT$  represent external debt;  $EXC$  represent exchange rate and  $CPI$  represent consumer price index  $\Delta$  represents the first difference operator,  $\beta_{01} \dots \beta_{04}$  are the constant terms;  $\beta_{11} \dots \beta_{55}$  represents the short run coefficients,  $\phi_{11} \dots \phi_{44}$  are the long run coefficients,  $n_1 \dots n_4$  are the lag length and  $\varepsilon_{t-1} \dots \varepsilon_{t-4}$  represents the white noise error terms.

We formulate the  $H_0$  and  $H_1$  hypothesis as shown below so as to test for existence of short run  $\beta_1$  and long run  $\phi_s$ .

H <sub>0</sub> : no long-run relationship	H <sub>1</sub> : a long-run relationship
$\phi_{11} = \phi_{12} = \phi_{13} = \phi_{14} = 0$	$\phi_{11} \neq \phi_{12} \neq \phi_{13} \neq \phi_{14} \neq 0$
$\phi_{21} = \phi_{22} = \phi_{23} = \phi_{24} = 0$	$\phi_{21} \neq \phi_{22} \neq \phi_{23} \neq \phi_{24} \neq 0$
$\phi_{31} = \phi_{32} = \phi_{33} = \phi_{34} = 0$	$\phi_{31} \neq \phi_{32} \neq \phi_{33} \neq \phi_{34} \neq 0$
$\phi_{41} = \phi_{42} = \phi_{43} = \phi_{44} = 0$	$\phi_{41} \neq \phi_{42} \neq \phi_{43} \neq \phi_{44} \neq 0$

H <sub>0</sub> : no short-run relationship	H <sub>1</sub> : a short-run relationship
$\beta_{11} = \beta_{12} = \beta_{13} = \beta_{14} = 0$	$\beta_{11} \neq \beta_{12} \neq \beta_{13} \neq \beta_{14} \neq 0$
$\beta_{21} = \beta_{22} = \beta_{23} = \beta_{24} = 0$	$\beta_{21} \neq \beta_{22} \neq \beta_{23} \neq \beta_{24} \neq 0$
$\beta_{31} = \beta_{32} = \beta_{33} = \beta_{34} = 0$	$\beta_{31} \neq \beta_{32} \neq \beta_{33} \neq \beta_{34} \neq 0$
$\beta_{41} = \beta_{42} = \beta_{43} = \beta_{44} = 0$	$\beta_{41} \neq \beta_{42} \neq \beta_{43} \neq \beta_{44} \neq 0$

Deciding on either to reject or accept H<sub>0</sub> (no co-integration among the variables) is based on the following criteria:

If F- Statistics (F<sub>s</sub>) > upper bond, then we reject H<sub>0</sub>, thus the variables are co-integrated;

If F<sub>s</sub> < lower bound, then we accept H<sub>0</sub>, thus we conclude that the variables are not co-integrated.

But if F<sub>s</sub> ≥ lower bound and ≤ Upper bound, under this condition, the decision is inconclusive.

The Granger causality test is as follows:

$$\begin{aligned}
 RGDP_t = & \sum_{i=1}^n \alpha_i EXTDEBT_{t-i} \\
 & + \sum_{j=1}^n \beta_j RGDP_{t-j} \\
 & + \varepsilon_{t1}
 \end{aligned} \tag{6}$$

$$\begin{aligned} \text{EXTDEBT}_t = & \sum_{i=1}^n \alpha_i \text{RGDP}_{t-i} \\ & + \sum_{j=1}^n \beta_j \text{EXTDEBT}_{t-j} \\ & + \varepsilon_{t1} \end{aligned} \quad (7)$$

## 4. Results and Discussion

### 4.1. Unit Root Test

**Table 1. Result of the adf unit root test**

Variables	ADF t-statistics	Critical values	Prob.	Lag	Inference
RGDP	-5.388094	-2.639210	0.0000	0	I(1)
EXTDEBT	-4.277351	-2.639210	0.0001	0	I(1)
EX	-4.853710	-2.639210	0.0000	0	I(1)
CPI	-6.079591	-2.639210	0.0000	0	I(1)

*Source: Authors Computation (2016) using E-view 7*

**Table 2. Result of the p-p unit root test**

Variable	P-P t- statistics	Critical values	Prob.	Inference
RGDP	-5.387940	-2.639210	0.0000	I(1)
EXTDEBT	-4.286336	-2.639210	0.0001	I(1)
EX	-4.875464	-2.639210	0.0000	I(1)
CPI	-6.079591	-2.639210	0.0000	I(1)

*Source: Authors Computation (2016) using E-view 7.*

The results of the unit root test are displayed in Table 1 and 2. It is evident that all the variables t-statistics have more negative results than the critical values at 1%, 5% and 10% level, thus we reject the null hypothesis of unit root test in the series. Beyond this, the t- values for variables; RGDP, EXTDEBT, EX and CPI are integrated at order 1.

### 4.2. Granger Causality Test

#### Real Gross Domestic Product and External Debt

D(RGDP) does not Granger Cause D(EXTDEBT)	31	0.04058	0.9603
D(EXTDEBT) does not Granger Cause D(RGDP)		0.03312	0.9675

*Source. Author Computation (2016) Using E-Views 7*

**The Null Hypothesis**

H0a: RGDP does not granger cause EXTDEBT

H0b: EXTDEBT does not granger cause RGDP

**Alternative Hypothesis**

H1a: RGDP granger cause EXTDEBT

H1b: EXTDEBT granger cause RGDP

Our main focus is on the causal relationship between Real Gross Domestic Product and External debt. But from the table above the probability value is greater than 0.05 which means that Real gross domestic product does not granger cause External debt and External debt does not granger cause Real gross domestic product. So we cannot reject the null hypothesis instead we accept it.

**4.3. Ardl Result**

No of lags	Akaike info criterion	Schwarz criterion
4	-2.257097	-1.266986
3	-2.211287	-1.417275
2	-2.017153	-1.363260

*Source. Authors Computation (2016) using E-view 7.*

**Test for Long run relationship**

H0:  $C18 = C19 = C20 = C21 = 0$

H1:  $C18 = C19 = C20 = C21 \neq 0$

Pesaran critical value at 5% level at significance. The model is unrestricted with intercept and no trend and the F-statistic is 7.823. From the table, the lower bound value is 3.79 and the upper bound value is 4.85. The F-statistic is more than the upper bound value, we can reject the null hypothesis since 7.823 is greater than 4.85.

From the ARDL and the Error Correction Model results, we can deduce that there is co-integration among the variables which means that there is a significant relationship between economic growth and macro-economic variables so we reject the null hypothesis.

## 5. Conclusion and Policy Implications

This study investigated the impact of external debt on economic growth in Nigeria. Annual data from Central Bank of Nigeria Statistical Bulletin 2015 for the period 1981 to 2014 were used. The study sought to know whether or not there exist a significant relationship between external debt and economic growth in Nigeria. The Real Gross Domestic Product was used as a proxy for economic growth which is the dependent variable while external debt, exchange rate and consumer price index were the independent variables. External debt, exchange rate and consumer price index were used to explain the external debt burden.

The ARDL estimates and Error correction model was used to test the first hypothesis of no significant long run relationship between external debt and economic growth. The null hypothesis was rejected as the result showed that a long run relationship exist between external debt and economic growth. The granger causality test was employed to test the second hypothesis of no causal relationship between external debt and economic growth in Nigeria. The null hypothesis is accepted as the result shows no causal relationship between external debt and economic growth.

Based on the results of the estimates, the study recommends that government and policy makers should stop accumulation of external debt stock overtime and prevent concealing of the motive behind external debt; external debts should be obtained mainly for economic reasons (productive purposes) and not for social or political reasons. Adequate record of debt payment obligations should be kept by the authorities responsible for managing Nigeria's external debt and the debt should not be allowed to exceed a maximum limit in order to evade debt overhang. The Nigerian government should also encourage the exportation of domestic products as high exchange rate will enable our goods to be more attractive in the foreign market which will increase foreign exchange earnings and promote the growth of our infant industries.

## 6. References

- Abdullahi, M.M.; Abubakar, N.A. & Hassan, S.B. (2015). Determining the macroeconomic factors of external debt accumulation in Nigeria: An ARDL Bound Test Approach. *Procedia – Social and Behavioral Sciences*, 211, pp. 745 – 752.
- Adepoju, A.A; Salau, A.S. & Obayelu, A.E. (2007). The Effects of External Debt Management on Sustainable Economic Growth and Development: Lessons from Nigeria. *Munich Personal RePEc Archive (MPRA)*. Paper No. 2147.
- Ajayi & Oke (2012). Effect of External Debt on Economic Growth and Development of Nigeria. *International Journal of Business and Social Science*, Vol. 3, No. 12.

Asley (2002). *Argued that Debt Burden is not a Problem of Freely Resource to Debt Services Payment*.

Babajide, A.A. & Lawal, A.I. (2016). Macroeconomic Behaviour And FDI Inflows In Nigeria: An Application of the ARDL Model. *British Journal of Economics, Finance and Management Sciences*, Vol. 11(1), pp. 84 – 107

Babajide, A.A.; Lawal, A.I. & Somoye, R.O.C. (2015). Monetary policy dynamics and the stock market movements: empirical evidence from Nigeria. *Journal of Applied Economic Sciences Volume X, Issue 8(38)*, pp. 1179 – 1188.

Bal, D.P. & Rath, B.N. (2014). Public debt and economic growth in India: A reassessment. *Economic Analysis and Policy*, 44(3), pp. 292 – 289.

Baldacci, E.; Gupta, S. & Mulas-Granados, C. (2015). Debt reduction, fiscal adjustment and growth in credit-constrained economies. *Journal of Applied Economics*, 18(1), pp. 71 – 97.

Bashar, M.A.; Dey, S. & Rahman, M.M. (2012). External Debt and Gross Domestic Product in Bangladesh: A Co-Integration Analysis. *Management Research and Practice*, (4), p. 36.

Bekhet, H.A. & Matar, A. (2013). Co-integration and causality analysis between stock market prices and their determinates in Jordan. *Economic Modelling* 35, pp. 508 – 518.

Boboye, A.L. & Ojo, M.O. (2012). Effect of External Debt on Economic Growth and Development in Nigeria. *International Journal of Business and Social Science*, 3(12), pp. 297-304, June.

Cevik, N.K. & Cural, M. (2013). Causality between Domestic Debt, External Debt, and Economic Growth: the Case of Turkey over the Period 1989-2012. *Maliye Dergisi*. S. 165, pp. 115-139.

Checherita-Westphal, C. & Rother, P. (2012). The impact of high government debt on economic growth and its channels: An empirical investigation for the Euro Area. *European Economic Review*, 56(7), pp. 1392 – 1405.

Chen, C.; Yao, S.; Hu, P. & Lin, Y. (2016) (In Press). Optimal government investment and public debt in an economic growth model. *China Economic Review* <http://www.sciencedirect.com/science/article/pii/S1043951X16300906>.

Dogan, I. & Bilgili, F. (2014). The non-linear impact of high and growing government external debt on economic growth: A Markov Regime-Switching approach. *Economic Modelling*, 39, pp. 213 – 220.

Engle, R.F. & Granger, C.J. (1987). Cointegration and error-correction-representation, estimation and testing. *Econometrica*, 55, pp. 251 – 278.

Fida, Khan & Muhammad (2011). Analysis of exchange rate fluctuations and external debt: Empirical evidence from Pakistan. *African Journal of Business Management* Vol.6(4), pp. 1760-1768.

Forbes, Kristin J. (2000). A reassessment of the relationship between inequality and growth. *American Economic Review*, 90(4), pp. 869—887.

Gomez-Puig, M. & Sosvilla-Rivero, S. (2015). The causal relationship between debt and growth in EMU countries. *Journal of Policy Modeling*, 37(6), pp. 974 – 989.

Gregory, A.W. & Hansen, B.E. (1996). Tests for cointegration in models with regime and trend shifts. *Oxford Bulletin of Economics and Statistics* 58, pp. 555 – 560.

Jayaraman, T.K. & Lau, E. (2009). Does external debt lead to economic growth in Pacific Island countries? *Journal of Policy Modeling*, 31(2), pp. 272 – 288.

- Johansen, S. & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration with application to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52, pp. 169 – 210.
- Johansen, S. (1991). Estimation and hypothesis testing of co-integration vectors in Gaussian vector autoregressive models. *Econometrica*, 59, pp. 1551 – 1580.
- Kasidi, F. & Said, A.M. (2013). Impact of external debt on economic growth: A case study of Tanzania. *Advances in Management & Applied Economics*, 3(4), pp. 59-82.
- Marashdeh, H. (2005). Stock Market Integration in the MENA Region: An Application of the ARDL Bounds Testing Approach. *Working Paper 05 – 27*, Department of Economics, University of Wollongong.
- Meyer, D. & Shera, A. (2016) (In Press). The impact of remittances on economic growth: An econometric model. *EconomiA*, <http://dx.doi.org/10.1016/j.econ.2016.06.001>.
- Muhtar (2004). *Weak External Demand for Philippine Export is Dampening Growth*.
- Ocampo (2004). *Utilized ordinary least Square for each of the Thirteen Less Developed Countries over the Sample Period 1965-1990*.
- Odhiambo, N.M. (2010). Finance – Investment –Growth Nexus in South Africa: An ARDL bound testing procedure. *Economic Change and Restructuring available online March*, doi:10.1007/010644-010r-r9085-5.
- Ogunmuyiwa, M.S. (2011). Does External Debt Promote Economic Growth?. *Current Research Journal of Economic Theory*. 3(1), pp. 29-35.
- Osinubi, T.S. & Olaleru, O.E. (2006). Budget Deficits, External Debt and Economic Growth in Nigeria. *Applied Econometrics and International Development*. 6(3).
- Osuji & Ozurumba (2013). Impact of External Debt Financing on Economic Development in Nigeria. *Research Journal of Finance and Accounting* Vol. 4, No. 4.
- Ouyang, A.Y. & Rajan, R.S. (2014). What determines external debt tipping points? *Journal of Macroeconomics*, 39(A), pp. 215 – 225.
- Ozturk, I. & Acaravci, A. (2010). The causal relationship between energy consumption and GDP in Albania, Bulgaria, Hungary and Romania: Evidence from ARDL bound testing approach. *Applied Energy* 87, pp. 1938 - 1943
- Panizza, U. & Presbitero, A.F. (2014). Public debt and economic growth: Is there a causal effect? *Journal of Macroeconomics*, 41, pp. 21 – 41.
- Pesaran, M.; Shin, Y. & Smith, R. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics* 16, pp. 289 – 326.
- Pesaran, M. & Shin, Y. (1999). *An autoregressive distributed lag modelling approach to cointegration analysis*. In: Strom, S. (Ed.), *Econometrics and Economic Theory in the 20<sup>th</sup> Century: The Ragnar Frisch centennial Symposium*. Cambridge University Press, Cambridge.
- Qayyum, U.; Din, M.U. & Haider, A. (2014). Foreign aid, external debt and governance. *Economic Modelling*, 37, pp. 41 -52.
- Ramzan, M. & Ahmad, E. (2014). External debt growth nexus: Role of macroeconomic policies. *Economic Modelling*, 38, pp. 204 – 210.

Siddique, A.; Selvanathan, E.A. & Selvanathan, S. (in Press) (2016). The Impact of external debt on growth: Evidence from highly indebted poor countries. *Journal of Policy Modeling*. <http://www.sciencedirect.com/science/article/pii/S01618938163000096>.

Spillioti, S. & Vamvoukas, G. (2015). The impact of government debt on economic growth: An empirical investigation of the Greek market. *The Journal of Economic Asymmetries*, 12(1), pp. 34 – 40.

Sulaiman, L.A. & Azeez, B.A. (2012). Effect of External Debt on Economic Growth of Nigeria. *Journal of Economic and Sustainable Development*, 3(8).

Uzun, A.; Karakoy, C.; Kabadayi, B. & Selcuk, E.O. (2012). The Impacts of External Debt on Economic Growth in Transition Economies. *Chinese Business Review*, 11(5), pp. 491-499.

Yucel, F. (2009). Causal Relationships between Financial Development, Trade Openness and Entrepreneurial Development: The Case of Turkey. *Journal of Economics and Finance*.

Zaman, R. & Arslan, M. (2014). The Role of External Debt on Economic Growth: Evidence from Pakistan Economy. *Journal of Economics and Sustainable Development*, 5(24).